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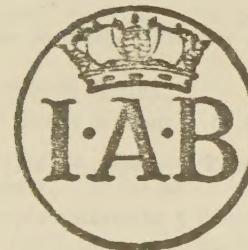
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HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1944.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
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HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY
FOR THE YEAR 1944.

Vol. XIII, Parts 1 & 2.

1—Acta Medica Scandinavica.

a. TÖTTERMAN, G., 1944.—“On the Price-Jones’ curve in tape-worm anemia.” 117 (2), 135-144.

(1a) Tötterman has evidence to show that the distribution curves in tapeworm anaemia and in cryptogenetic pernicious anaemia are similar. There was no correlation between the size of the mean diameter with either the size of the standard deviation or of the red cell count. There was, however, an agreement between the red cell count and the size of the standard deviation. The distribution curve in severe cestode anaemia shows tendencies which are characteristic of cryptogenetic pernicious anaemia.

P.A.C.

2—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

a. ANON, 1944.—“‘Husk’ or ‘hoose’ in calves.” No. 15, 2 pp.
b. ANON, 1944.—“Stomach worms in sheep. (Parasitic gastritis).” No. 275, 3 pp.

3—Agricultural Gazette of New South Wales.

a. BELSCHNER, H. G., 1944.—“Worms in sheep.” 55 (1), 32-35; (2), 75-78; (3), 120-122; (4), 163-166; (5), 217-220.
b. HUNGERFORD, T. G. & HOWE, K., 1944.—“Toxic effect of phenothiazine on breeding ewes in advanced stages of pregnancy.” 55 (2), 92.

(3b) Of 12 ewes drenched with phenothiazine 5 delivered stillborn lambs in one to nine days after dosing, as compared with 100% normal births following drenching with bluestone-nicotine-sulphate.

R.T.L.

4—American Journal of Hygiene.

a. LARSH, jr., J. E., 1944.—“Studies on the artificial immunization of mice against infection with the dwarf tapeworm, *Hymenolepis nana* var. *fraterna*.” 39 (2), 129-132.
b. LARSH, jr., J. E., 1944.—“The relation between splenectomy and the resistance of old mice to infection with *Hymenolepis nana* var. *fraterna*.” 39 (2), 133-137.
c. HOPP, W. B., 1944.—“On the epidemiology of human intestinal parasite infections in a state hospital of Indiana.” 39 (2), 138-144.
d. WATT, J. Y. C., 1944.—“The influence of vitamins B₁ (thiamine) and B₂ (riboflavin) upon the resistance of rats to infection with *Nippostrongylus muris*.” 39 (2), 145-151.
e. CULBERTSON, J. T., ROSE, H. M. & DEMAREST, C. R., 1944.—“Loiasis and onchocerciasis: a new antigen for their diagnosis by skin test.” 39 (2), 152-155.
f. CULBERTSON, J. T., ROSE, H. M. & DEMAREST, C. R., 1944.—“Filariasis bancrofti: its diagnosis by immunological tests with antigen derived from *Litomosoides carini*.” 39 (2), 156-162.

(4a) Larsh was able to produce an immunity in mice to infection with *Hymenolepis nana* var. *fraterna* by intraperitoneal injections of suspensions of fresh adult worm antigen. As a result of this treatment only a quarter of the cysticercoids were able to develop when compared with controls fed equal numbers of eggs. Doses of this antigen given to pregnant females induced a certain amount of resistance in the offspring but it was not as great as the resistance of offspring born of infected mothers.

P.A.C.

(4b) Larsh produces evidence to show that splenectomized mice are more susceptible to infection with *Hymenolepis nana* than are intact mice. Associated with this increased suscepti-

bility was a marked progressive anaemia and the haemoglobin content fell considerably and this was probably an important factor in reducing resistance.

P.A.C.

(4d) Watt has shown that rats fed diets deficient in either vitamin B_1 or vitamin B_2 become highly susceptible to infestation with *Nippostrongylus muris*, and the plasma from such animals was less effective than normal plasma in protecting other animals against infestation.

P.A.C.

(4e) Culbertson et al. have produced an antigen from *Litomosoides carinii* which has given positive results with the Casoni test in persons infested with *Loa loa* and *Onchocerca volvulus*. The antigen gave negative results in 38 patients not suspected of filarial infestation: of two controls who gave positive results, one also gave a positive skin test for *Trichinella spiralis* and the other suffered from testicular teratoma with an enlargement of the thigh suggestive of elephantiasis.

P.A.C.

(4f) Culbertson et al. produced positive skin reactions in 81.4% of a group of patients suspected of *Wuchereria bancrofti*. Though microfilariae were not present in the circulating blood, the men had lived in an endemic area for about a year and were showing some of the early clinical symptoms of the disease. Positive results were also obtained with the precipitation and complement fixation tests in over 75% of these cases.

P.A.C.

5—American Journal of Public Health.

a. MELENEY, H. E., 1944.—“Public health implications of tropical and imported diseases; Public health aspects of certain other diseases to which our military forces may be exposed.” 34 (1), 21-26.

(5a) Meleney discusses the probability of diseases introduced by returning soldiers becoming endemic in the U.S. The helminth infections discussed are *Schistosoma*, *Taenia solium*, hydatid, *Diphyllobothrium*, hookworm, and *Wuchereria bancrofti*. Of these *Schistosoma* infection might become endemic as suitable intermediate hosts possibly exist in the U.S.: the remainder are not considered to be of any importance in this connection.

A.E.F.

6—American Journal of Veterinary Research.

a. ANDREWS, J. S., KAUFFMAN, W. & DAVIS, R. E., 1944.—“Effects of the intestinal nematode, *Trichostrongylus colubriformis*, on the nutrition of lambs.” 5 (14), 22-29.
 b. DINABURG, A. G., 1944.—“The survival of the infective larvae of the common ruminant stomach worm, *Haemonchus contortus*, on outdoor grass plots.” 5 (14), 32-37.
 c. DAVIS, L. R., 1944.—“Two new enterotome devices.” 5 (14), 60-61.
 d. FURMAN, D. P., 1944.—“Effects of environment upon the free-living stages of *Ostertagia circumcincta* (Stadelmann) Trichostrongylidae: I. Laboratory experiments.” 5 (14), 79-86.
 e. FURMAN, D. P., 1944.—“Effects of environment upon the free-living stages of *Ostertagia circumcincta* (Stadelmann) Trichostrongylidae: II. Field experiments.” 5 (15), 147-153.
 f. KATES, K. C., 1944.—“Some observations on experimental infections of pigs with the thorn-headed worm, *Macracanthorhynchus hirudinaceus*.” 5 (15), 166-172.
 g. PETERSON, E. H., KAMMLADE, W. G. & WEBB, R. J., 1944.—“The effectiveness of a 1-to-14 phenothiazine-salt mixture in controlling nematode infection in sheep.” 5 (16), 228-233.

(6a) Experiments, in which 4 crossbred Hampshire Southdown lambs were infected with *Trichostrongylus colubriformis*, failed to confirm that the worms alone produced a depression of the apparent digestibility coefficients of crude protein and crude fibre or that they decreased the absorption of calcium and phosphorus as claimed by Stewart [see Helm. Abs., Vol. III, Nos. 40a & b] and by Shearer & Stewart [see Helm. Abs., Vol. III, No. 40c]. The presence of *T. colubriformis* even in considerable numbers did not produce symptoms of gastro-intestinal parasitism or alter the digestibility coefficients of the ingested food, but did affect the ability of the lambs to utilize their food economically. Where the worms were present in sufficient numbers to produce severe and prolonged diarrhoea the vitality of the lambs was reduced to a point where the physiological processes could no longer operate effectively.

R.T.L.

(6b) Using known numbers of infective larvae of *Haemonchus contortus* on grass plots over 4 seasons, the percentage of larvae Dinaburg recovered was about 1.0% after 70 days in the spring, after 14 to 28 days in the summer, after 42 to 56 days in the autumn, and between 27 to 41 days in the winter. No larvae were recovered after 98 days in the spring, 42 days in the

summer, 316 days in the autumn and 83 days in the winter. A lamb which grazed 9 days on 2 infected plots which had been exposed for 266 days since the autumn, failed to acquire any infection. Of the larvae recovered from the plots 43% were on the grass, 24.2% on the surface of the soil, 32% in the first inch of soil and only 0.8% in the second inch of soil. There was only slight lateral migration of larvae.

R.T.L.

(6c) A new and useful type of enterotome knife consists of a rod of stainless steel bent at 60 mm. from the end at an angle of 120°; a longitudinal slot is cut on the inside of the angle at about 35 mm. from the angle towards each end. The rod is then further bent to form an angle of 90°. Holes are bored and fitted with screws to take a half of a double-edged razor blade split longitudinally. It is claimed that with this device a bovine intestine can be slit longitudinally in one and a half minutes. For smaller animals a simpler device is made by soldering a rounded point to a Bard-Parker no. 12 blade.

R.T.L.

(6d) Experiments were made to clarify the relationship between the incidence of *Ostertagia circumcincta* in sheep and environmental factors affecting the free-living larval stages. Infective larvae migrate downward in loose soil to a slight extent. Lateral migration on the surface of the soil is limited to 1 to 2 inches. Eggs buried to a depth of 12 inches in soil can complete their development to the infective stage and migrate to the surface within a few days. The extent of this is inversely proportional to the heaviness of the soil and it only occurs when the soil is appreciably moist. It follows that ploughing up of infected pasture is not an adequate means of ridding it of *O. circumcincta*. The infective larvae are far more resistant to drying than any of the earlier stages.

R.T.L.

(6e) The laboratory studies on the larvae of *Ostertagia circumcincta* described in a previous paper [see preceding abstract] were followed by field experiments in the dry Sacramento Valley region of California to ascertain the effects of pasture type and management on the longevity and availability of the free stages of the parasite. On non-irrigated pastures these stages are rapidly killed in the summer but survive on irrigated pastures. A greater number of infective larvae occur on the upper foliage of ladino clover than on alfalfa and more on the upper foliage of alfalfa than on western rye grass. Ladino clover has glabrous stems lying prostrate on the soil surface. The petiolules of the leaflets appear to form no obstructions since they arise from the stems as smooth branches, while in western rye grass the glabrous stem or culm is enveloped by the sheath of each leaf whereby the ascending larvae are deflected on to the leaf.

R.T.L.

(6f) The maximum duration of adult infection in pigs with *Macracanthorhynchus hirudinaceus* is about 10 months. Two or three months lapse after infection before the adult phase is reached. A female may produce 260,000 eggs daily, while a gravid female may contain at one time 10 million embryonated eggs. The site of election is the jejunum about 23 to 43 feet from the pylorus. The males range from 5.3 cm. to 10.8 cm., the females measure from 21.6 cm. to 45.7 cm.

R.T.L.

(6g) Peterson et al. point out that the anthelmintic action of a phenothiazine-salt mixture is largely due to suppression of egg-laying among nematodes and not to complete elimination. Such a mixture will not protect sheep grazed upon pastures which are heavily infected with nematode larvae.

P.A.C.

7—Annals and Magazine of Natural History.

a. PRUDHOE, S., 1944.—“On some trematodes from Ceylon.” Ser. 11, 11 (73), 1-13.

(7a) Prudhoe reports upon a collection of 9 species of trematodes from Ceylon which includes 2 new species: *Cyclocoelium bivesiculatum* n.sp., from *Thereiceryx zeylanicus zeylanicus*, which is distinguished by the excretory vesicle being divided into 2 bulbous sacs and a weakly developed oral sucker; *Chiorchis burti* n.sp., from *Rana hexadactyla*, also some immature worms probably of the same species, in *Accipiter virgatus besra*, where they may be pseudo-parasites. The genus *Allechinostomum* Odhner is shown to be synonymous with *Echinochasmus*, and *E. famelicus* (Odh.) n. comb. is redescribed. *Nephrostomum bicolanum* Tubangui is considered to be synonymous with *N. ramosum* (Sons.).

N.G.S.

8—Antiseptic. Madras.

- a. RAO, P. R. & RAJU, P. N., 1944.—“Surgical complications of filariasis.” *41* (2), 81-87.
- b. SHAH, T. M., 1944.—“A case of filariasis of the scrotum.” *41* (2), 110-111.

9—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. ARDAO, H. A. & ZERBONI, E., 1944.—“Ileo vermicular. Radiología de las ascaridiasis.” *24* (1), 82-93.

10—Berliner und Münchener Tierärztliche Wochenschrift und Wiener Tierärztliche Monatsschrift.

- a. BIELING, C., 1944.—“Starker Askaridenbefall mit tödlichem Ausgang bei einem zweijährigen Kaltblutfohlen.” *1944* (1/2), 9.
- b. FRITZSCHE, K., 1944.—“Beobachtungen über Geflügelkrankheiten in Russland.” *1944* (3/4), 24-26.

(10b) This report by a German Veterinary Officer on the examination of about 250 fowls in an unnamed district of Russia, has a section on helminths. The most common species found were *Capillaria* spp. and *Raillietina* spp.: *Davainea proglottina*, *Ascaridia lineata* and *Heterakis gallinae* also occurred.

A.E.F.

11—British Medical Journal.

- a. BEATTIE, J., HERBERT, P. H., WECHTEL, C. & STEELE, C. W., 1944.—“Studies on hepatic dysfunction. I. Carbon tetrachloride poisoning treated with casein digest and methionine.” *Year 1944*, **1** (4336), 209-211.
- b. SCOTT, J. G., 1944.—“Ocular syndrome in onchocerciasis.” *Year 1944*, **1** (4346), 553-554.
- c. ANDREWS, G. W. S. & OGILVIE, A. C., 1944.—“Multiple infestation with *Taenia saginata*.” *Year 1944*, **1** (4352), 772.

(11b) Two cases are reported in which there was oedema of the upper eyelid, proptosis, ciliary flush and unilateral oedema of the optic nerve, associated with embryos of *Onchocerca volvulus* in skin-snips. It is suggested that *Onchocerca volvulus* produces an anaphylactic oedema.

R.T.L.

12—California Fish and Game.

- * a. HERMAN, C. M., 1944.—“Eye worm (*Thelazia californiensis*) infection in deer in California.” *30* (1), 58-60.

13—Canadian Journal of Research. Section D. Zoological Sciences.

- a. CAMERON, T. W. M., 1944.—“The morphology, taxonomy, and life history of *Metorchis conjunctus* (Cobbold, 1860).” *22* (1), 6-16.

(13a) The life-history of *Metorchis conjunctus* has been completed experimentally by Cameron and its stages are described. Miracidia from embryonated eggs give rise to sporocysts which produce collarless rediae in *Amnicola limosa porata*. The pleurolophocercous cercariae may live for 60 to 72 hours and they encyst in the body muscles of *Catostomus commersonii* (and are killed at 70° C.). Cats were used experimentally as the final host. The taxonomy of the species of *Metorchis* in mammals is discussed; their number is reduced to three, and all those occurring in Canada are found to be synonymous with *M. conjunctus*. It is shown to be highly variable in size, this being roughly proportional to the size of the host species. Its distribution in Canada is co-extensive with that of the snail host.

N.G.S.

14—Canadian Journal of Research. Section E. Medical Sciences.

- a. COLLIER, H. B. & MACK, jr., G. E., 1944.—“Vitamin B and phenothiazine anaemia in dogs.” *22* (1), 1-11.

(14a) Haemolytic anaemia occurred in three out of eight dogs treated with phenothiazine. A diet deficient in vitamin B intensified the anaemia and jaundice, but the addition of vitamin B

* Original not available for checking or abstracting.

to normal diets did not prevent the anaemia. One animal died, with portal cirrhosis, after four courses of the drug totalling 340 g.

R.T.L.

15—Canadian Medical Association Journal.

a. HOGARTH, W. P., 1944.—“Bilharziasis in Canada.” 50 (3), 253-254.

(15a) The case history shows that the infection, if actually one of *S. haematobium*, was not contracted in Canada.

R.T.L.

16—Cornell Veterinarian.

a. BRITTON, J. W., 1944.—“A disease complex in calves on the north coast of California.” 34 (1), 30-37.

(16a) Britton describes a disease complex which has proved very serious among calves on the north Californian coast. It is characterized by emaciation, parasitic gastro-enteritis and bronchitis, pediculosis, or calf pneumonia. The removal of calves from the source of infection, administration of phenothiazine, and increased rations proved successful remedial measures.

A.E.F.

17—Deutsche Tierärztliche Wochenschrift. Tierärztliche Rundschau.

a. GANSLMAYER, R., 1944.—“Die Behandlung der Leberegelkrankheit mit besonderer Berücksichtigung der therapeutischen Verhältnisse auf diesem Gebiet in Kroatien.” 52/50 (7/8), 69-75.

b. PALLASKE, G., 1944.—“Zur pathologischen Anatomie wenig bekannter parasitärer Erkrankungen des Geflügels.” 52/50 (11/12), 97-100.

(17a) In this lecture to the Hanover Veterinary College, Ganslmayer summarizes the work done in Croatia on the control of liver-fluke disease. He deals with measures directed against *Limnaea truncatula*, and with the treatment of cattle and sheep with hexachlorethane and carbon tetrachloride. Most of the work has already been dealt with in these Abstracts.

A.E.F.

(17b) Pallaske describes the pathology of certain lesser known helminth infections in poultry which service in western Poland has enabled him to study. The infections dealt with are: *Capillaria annulata* in fowls and turkeys, *Tetrameris fissispina* and *Echinuria uncinata* in ducks and geese, and *Polymorphus boschadis* in ducks.

A.E.F.

18—Día Médico.

a. GOYCOECHEA, O. L. DE, 1944.—“Hidatidosis hepatica.” 16 (14), 301-303.

19—East African Agricultural Journal.

a. ANON, 1944.—“Notes on animal diseases. XXI. Diseases caused by worms.” 9 (3), 177-180.

b. ANON, 1944.—“Notes on animal diseases. XXII. Diseases caused by worms—(contd.).” 9 (4), 240-244.

20—East African Medical Journal.

a. FOLEY, E. J., 1944.—“Multiple unilocular hydatid cysts.” 21 (5), 152-153.

21—Gastroenterology. Baltimore.

a. FAUST, E. C., 1944.—“Disease in the tropical war zones. III. The diseases of the Mediterranean Basin and of Tropical Africa.” 2 (1), 13-31.

(21a) In this continuation of his survey of diseases in tropical theatres of war [for earlier work see Gastroenterology, 1943, 1, 995-1012] Faust deals with Tropical Africa and the Mediterranean basin. The helminth infections dealt with are: ascariasis, ancylostomiasis,

† The first volume number is that of Deutsche Tierärztliche Wochenschrift and the second that of Tierärztliche Rundschau. Although the two journals are now issued as one, the volume number of each is retained.

strongyloidiasis, whipworm infection, *Taenia saginata*, *T. solium* (which is practically non-existent), *Hymenolepis nana*, *Diphyllobothrium latum*, hydatid, schistosomiasis, *Wuchereria bancrofti*, *Loa loa* and *Onchocerca volvulus*.
A.E.F.

22—*Helvetica Medica Acta*.

a. ZWEIFEL, E., 1944.—“Hautprüfungen mit Askaridenextrakt bei flüchtigen eosinophilen Lungeneinfiltraten (= f.e.l.)” 11 (1/2), 117-122. [Discussion pp. 120-122.]

(22a) Zweifel has investigated the connection between hypersensitivity to Ascaris and the presence of a transient pulmonary eosinophile infiltration. Cutaneous reactions are absent when the infiltration is produced experimentally but can be induced by the actual skin testing. His results suggest strongly that the eosinophilia may arise as the result of the presence of Ascaris antibodies.
P.A.C.

23—*Indian Medical Gazette*.

a. MUKERJI, A. K. & BHADURI, N. V., 1944.—“Increasing incidence of *Taenia solium* infection in Calcutta.” 79 (1), 19-20.

(23a) During 15 years (1928 to 1942) of 20,664 patients admitted to or attending the out-patient department of the Carmichael Hospital for Tropical Diseases in Calcutta only 3 were found with *Taenia solium* while 281 had *Taenia saginata*, while during the first half of 1943 of 887 patients 6 had *T. solium* and 22 had *T. saginata*. Only country hogs are responsible for the *T. solium* infection and probably more are being brought into the city owing to the recent heavy demand for pork.
R.T.L.

24—*Indian Veterinary Journal*.

a. MAQSOOD, M., 1944.—“Cardiac echinococcosis in a buffalo.” 20 (4), 193-194.
b. RAO, K. S., 1944.—“Ocular filariasis.” 20 (4), 196-197.
c. RAO, B. M., 1944.—“Treatment of liver fluke infestation in cattle and sheep in Nizam Sagar area with carbon tetrachloride and igitol and their comparative merits.” 20 (5), 235-240.
d. MAQSOOD, M., 1944.—“Acute amphistomiasis in a cow in northern India.” 20 (5), 266-269.
e. AYYAR, T. S. V., 1944.—“Verminous ophthalmia in canines.” 20 (5), 269.
f. MAQSOOD, M., 1944.—“Echinococcus cyst in the kidney of a cow.” 20 (6), 260-261.

(24b) Extra-ocular filariasis due to *Thelazia rhodesi* is fairly common in cattle and buffaloes in India. The worms are easily removed by swabbing the eye with warm saline and in obstinate cases with aqua camphor or hydr. perchloride 1 in 8000. Intra-ocular filariasis is found in equines, ordinarily, and lives in the anterior chamber, producing opacity of the cornea. Treatment is by operation after anaesthetizing the eye with cocaine solution.
R.T.L.

(24c) Igitol is more expensive and more difficult to administer for liver-fluke infection than carbon tetrachloride, but the effects are more reliable and earlier. The author only uses Igitol where calcium deficiency is suspected.
R.T.L.

(24d) Large numbers of immature *Paramphistomum cervi* embedded in the submucous coats of the pyloric region of the abomasum, duodenum and ileum are responsible for acute catarrhal enteritis. The gastric and intestinal walls have a thickened and oedematous appearance. The blood vessels are congested and the loose alveolar tissue becomes filled with exudate.
R.T.L.

(24e) From the eyes of a country-bred pup over 100 specimens of *Thelazia callipaeda* were removed.
R.T.L.

25—*Iowa State College Journal of Science*.

a. MOREHOUSE, N. F., 1944.—“Life cycle of *Capillaria caudinflata*, a nematode parasite of the common fowl.” 18 (2), 217-253.

(25a) *Capillaria caudinflata* uses the earthworm *Helodrilus caliginosus* as vector, taking 9 days for its development to the infective stage. The eggs will readily hatch in digestive juices of this earthworm *in vitro*. Suitable definitive hosts are the chicken, turkey and English sparrow. The species occurs in 13 different states of the U.S.A. and is prevalent in the middle

west Eggs can readily be distinguished from those of *C. columbae*. Morehouse has also investigated the reactions of the eggs to varying temperatures and describes the developmental stages in the life-cycle of the worm.

P.A.C.

26—Iowa Veterinarian.

a. CROSS, S. X., 1944.—“Nodular worms in sheep, grubs in cattle and methods for controlling them.” 15 (1), 6-7, 16, 26-27.

27—Journal of Agricultural Research.

a. SHORB, D. A., 1944.—“Survival on grass plots of eggs and larvae of the stomach worm, *Haemonchus contortus*.” 68 (8), 317-324.

(27a) Shorb finds that the survival of eggs of *Haemonchus contortus* depends on meteorological conditions. Young non-infective larvae are killed by both cold and desiccation, and infective larvae can withstand considerable cold but little desiccation. Only a few larvae survive winter conditions in Beltsville, Md., so that pastures kept free from fresh sheep faeces from October to April are fairly free from eggs.

P.A.C.

28—Journal of Allergy.

a. BRUNNER, M., ALTMAN, I. & BOWMAN, K., 1944.—“Canine sensitivity to Ascaris antigen.” 15 (1), 2-8.

(28a) Brunner et al. set out to determine whether Ascaris would produce skin-sensitizing antibodies in the dog with characteristics similar to the atopic reagins which are produced in humans. They produced positive cutaneous reactions in 50% of the dogs to extracts of canine and pig Ascaris and constitutional reactions resulted in 2 of the dogs. They were able to transfer passively antibodies in the blood serum of naturally sensitive dogs to other dogs and to humans. Other dogs became actively sensitized to Ascaris extract and gave well-marked skin reactions and the blood serum of one such dog gave a weak positive Prausnitz-Küstner reaction. The effective antibody is heat labile.

P.A.C.

29—Journal of the American Medical Association.

a. HOLMAN, E. & PIERSON, P., 1944.—“Multiple echinococcus cysts of the lung, liver and abdomen.” 124 (14), 955-958.

30—Journal of the American Veterinary Medical Association.

a. EIGENFELD, D. D. & SCHLESINGER, C. J., 1944.—“An improved flotation method for the recovery of ova from feces.” 104 (802), 26.
 b. QUORTRUP, E. R. & SUDHEIMER, R. L., 1944.—“Some wildlife cases of particular interest.” 104 (802), 29.
 c. THORNING, W. M., SAMPSON, J. & GRAHAM, R., 1944.—“The anthelmintic efficiency of phenothiazine in sheep. (Capsule, bolus, drench and soybean pellets).” 104 (803), 67-72.
 d. KOUTZ, F. R., 1944.—“Recent observations on parasites in small animals.” 104 (805), 199-203.
 e. BRITTON, J. W. & MILLER, R. F., 1944.—“The practical application of anthelmintic medication of lambs.” 104 (806), 270-272.
 f. BURNS, H. C., 1944.—“Observations on heartworm in British racing greyhound kennels in Nassau.” 104 (807), 325-327.
 g. DOLL, E. R. & HULL, F. E., 1944.—“Nematode parasitism of sheep.” 105 (808), 13-21.

(30a) A simple apparatus is described and illustrated for carrying out the flotation procedure for concentrating amoebic cysts and various helminth eggs. A side arm is made in a test tube by pressing outwards a portion of the glass, after heating, to form a bulge. This is effected by a long pair of forceps which have previously been heated at the tip. The bulge is then pulled out in an arc directed backwards towards the closed end of the tube. When cool the tip is cut off. Enough faecal suspension is put into the tube to reach almost to the level of the side arm. A funnel is then introduced into the tube reaching to the bottom. After sufficient time has elapsed for flotation, enough of the high gravity solution is slowly poured into the funnel to allow 2 to 4 c.c. of the surface layer to spill over into the side arm where it is

caught in a centrifuge tube. 10 c.c. of distilled water are then added to the centrifuge tube. This is centrifuged and the sediment examined for cysts and ova. [The technique described overlooks the difficulty of detaching certain ova which are apt to adhere to glass.] R.T.L.

(30b) Rocky Mountain bighorn sheep suffer from verminous pneumonia due to *Protostrongylus stilesi*. In the intestine are found *Marshallagia marshalli*, *Trichuris* sp., *Ostertagia grühneri* and *O. occidentalis*. The last two species have not been recorded from bighorn sheep previously. R.T.L.

(30c) Thorning et al. have treated sheep with phenothiazine made up in different forms : the results are comparable whether the drug is administered in a gelatine capsule, as a bolus, a plain drench, in suspension in molasses, or as soya bean pellets. It had some action on species of *Haemonchus* and *Oesophagostomum*, but none on *Strongyloides*, *Trichuris* or *Nematodirus*. Treated lambs were appreciably heavier than the controls after 5 weeks. P.A.C.

(30d) Of dogs and cats taken to the clinic of Ohio State University in 1942, an incidence of parasitic infection in house dogs as high as 90% was noted. *Trichuris vulpis* (26.84%) was the most frequent, followed by *Toxascaris leonina* (21.44%) and thirdly *Ancylostoma caninum* (20.43%). *Diocophyme renalis* occurred in the kidneys of 3 dogs. *Diphyllobothrium latum* occurred several times in dogs. *Dirofilaria immitis* is noted as having become increasingly prevalent, no cases having been reported in Ohio until 1934. R.T.L.

(30e) Comparing the anthelmintic action of a copper sulphate-nicotine sulphate mixture, of tetrachlorethylene and of phenothiazine, Britton & Miller find that the phenothiazine is the least toxic and as a mixture with salt is easy to administer. No period of starvation is necessary before treatment, but it is tedious and bulky to administer when individual treatment is necessary. It is somewhat expensive. On the whole, when used in conjunction with salt, it is the most satisfactory anthelmintic for sheep. P.A.C.

(30f) Greyhounds imported into the Bahamas may develop infestation with heart worms within 6 months of arrival. The symptoms can be treated with Filsol, Fouadin, and tobacco but such treatment affects whelping among the bitches. P.A.C.

(30g) Doll & Hull find that helminth parasitism in sheep in Kentucky may cause such severe lesions that recovery with the production of profitable animals is not possible. They recommend anthelmintic treatment in conjunction with strict preventive measures : phenothiazine should be administered in November and again in December, and ewes should be treated again in spring. The low winter temperature will be fatal to most of the free larvae. Control measures include good nutrition, pasture rotations and avoidance of overstocking. P.A.C.

31—Journal of Comparative Pathology and Therapeutics.

- OLDHAM, J. N. & WHITE, E. G., 1944.—“Chronic focal interstitial hepatitis in the pig : its experimental production by feeding *Ascaris* eggs.” 54 (1), 1-15.
- STEWART, J. & HOLMAN, H. H., 1944.—“The blood picture of ‘pining’ conditions in sheep.” 54 (1), 41-48.

(31a) Oldham & White present details of preliminary experiments and results of later experiments to support the view that “white or milk spot liver” is caused by migrating *Ascaris* larvae [see Helm. Abs., Vol. XI, No. 272a]. Each of 20 pigs, 8 to 11 weeks old, were fed 200,000 to 400,000 embryonated *A. lumbricoides* eggs. Eighteen of the pigs received the eggs as a single infective dose and they were killed at intervals varying from 18½ hours up to 30 days afterwards. The two remaining pigs were fed the eggs in 10 small doses at weekly intervals and one was killed 4 days after the last dose, while the second animal received a final single dose of 250,000 eggs and was killed 6 days later. Blood films for eosinophile counts were made just before slaughter of the 9 pigs in the first series of experiments, and at the time of feeding the eggs and just before slaughter of the 11 animals in the second experimental series. The post-mortem procedure included examination of washings of the peritoneal and thoracic cavities and of the trachea in some animals, extraction of larvae from minced liver and lungs by the Baermann technique, faecal examination for helminth eggs, and histological examination of liver, lungs and kidneys. Both series of experiments showed that lesions identical in appearance

with those of natural "milk spot liver" [see Helm. Abs., Vol. X, No. 192a] could be produced by feeding *Ascaris* eggs. Animals given a single large dose of eggs showed an eosinophilia which was evident after 24 hours and which reached a maximum of 23.7%, at 10 to 20 days. The development and time relations of the eosinophilia were similar in animals given repeated small doses of eggs; only the initial dose appeared to produce a rise in the eosinophils, the level returning to normal after 4 to 5 weeks. It is emphasized that more general and stricter attention to control methods by proper animal management would reduce losses from round-worm infestation, not the least of which is the loss, as human food, of condemned "milk spot livers".

J.N.O.

(31b) The results, summarized in a table, obtained by Stewart & Holman from an investigation of the blood picture of three types of sheep "pining" diseases, viz., worm infestation, cobalt deficiency and Solway pine, do not give promise that blood analyses will be of much service in differential diagnosis. Sheep heavily infested with worms or suffering from severe debility as a result of helminth invasion showed hyperchloraemia as a usual feature, and the mean haemoglobin content of the blood of worm-infested lambs was only 61% of that of normal lambs. In general, there was an anaemia with an appreciable neutrophilic reaction. Where there is no fall in the blood haemoglobin and red cell count in cases of severe "pining", it would appear that the cause is not worm infestation and is more likely to be due to cobalt deficiency as the physiological role of cobalt does not seem to be associated with haemoglobin formation. The authors consider that, with increased knowledge, a soil and pasture analysis will be a better guide to the type of "pining" present than will be blood examination.

J.N.O.

32—Journal of the Department of Agriculture. Dublin.

a. SLEITH, F. ST. G., 1944.—"Some observations on parasitic worms in livestock." 41 (1), 82-89.

(32a) In a popular article on helminth infestation of sheep, Sleith stresses the direct and indirect loss due to the parasites and outlines the more usual preventive measures which may be adopted to cut down losses.

P.A.C.

33—Journal of the Department of Agriculture. South Australia.

a. MITTON, R. L., 1944.—"Internal parasites of sheep." 47 (6), 257-259; (8), 337-339.

(33a) [For an earlier part of this paper see J. Dep. Agric. S. Aust., 1943, 47, 118-121.]

34—Journal of Immunology.

a. GRAÑA, A., 1944.—"Antibodies against sheep erythrocytes produced by the injection of hydatid liquid in patients with hydatid cyst." 48 (3), 203-211.

(34a) Graña finds that there is an increase of heterologous antibodies following repeated subcutaneous injections of hydatid fluid in patients carrying hydatid cysts. He suggests that these antibodies represent a new type and previous sensitization of the tissues to hydatid antigen is necessary for their appearance, as they never develop in subjects without hydatid cyst, or in non-infected rabbits.

P.A.C.

35—Journal of Infectious Diseases.

a. OLIVER-GONZÁLEZ, J., 1944.—"The inhibition of human isoagglutinins by a polysaccharide from *Ascaris suum*." 74 (2), 81-84.

(35a) A polysaccharide extracted from *Ascaris suum* has the property of inhibiting the agglutination of human erythrocytes and it is suggested that this or some other related substance may be able to reduce the α and β agglutinins of Group O blood and of pooled plasma, thus making them safer for transfusion. There is the possibility, however, that its use may encourage the development of hypersensitivity to *Ascaris*, though it seems to be a much poorer antigen than one made from whole worm.

P.A.C.

36—Journal of Parasitology.

- a. CORT, W. W., AMEEL, D. J. & OLIVIER, L., 1944.—“An experimental study of the development of *Schistosomatium douthitti* (Cort, 1914) in its intermediate host.” *30* (1), 1-17.
- b. LARSH, jr., J. E. & DONALDSON, A. W., 1944.—“The effect of concurrent infection with *Nippostrongylus* on the development of *Hymenolepis* in mice.” *30* (1), 18-20.
- c. LARSH, jr., J. E., 1944.—“Comparative studies on a mouse strain of *Hymenolepis nana* var. *fraterna*, in different species and varieties of mice.” *30* (1), 21-25.
- d. JONES, M. F. & HOLLAENDER, A., 1944.—“Effect of long ultraviolet and near visible radiation on the eggs of the nematodes *Enterobius vermicularis* and *Ascaris lumbricoides*.” *30* (1), 26-33.
- e. BRADY, F. J. & LAWTON, A. H., 1944.—“A new method for quantitative estimation of microfilariae in blood samples.” *30* (1), 34.
- f. CORT, W. W. & AMEEL, D. J., 1944.—“Further studies on the development of the sporocyst stages of *Plagiorchis trematodes*.” *30* (2), 37-56.
- g. OLIVIER, L., 1944.—“Acquired resistance in chickens, turkeys, and ring-necked pheasants to the gapeworm, *Syngamus trachea*.” *30* (2), 69-76.
- h. GOBLE, F. C. & CHEATUM, E. L., 1944.—“Notes on the lungworms of North American Leporidae.” *30* (2), 119-120.
- i. BRAND, T. VON & SIMPSON, W. F., 1944.—“Physiological observations upon a larval *Eustrongylides*. VII. Studies upon survival and metabolism in sterile surroundings.” *30* (2), 121-129.

(36a) Cort, Ameel & Olivier have compared the productivity of cercariae in the sporocyst generations of *Schistosomatium douthitti* with that in other schistosomes such as *Cercaria stagnicola* and *C. elvae*. They find that the interpolation of polyembryony in the germ-masses, found in both sporocyst generations of the last two, not only greatly increases the number of cercariae, but effect a protracted discharge of them over a far longer period than found in *S. douthitti*. Miracidia, from *S. douthitti* infecting mice, were allowed to penetrate *Stagnicola palustris elodes*, in the tissues of which the skin was shed and the germ-cells in the body continued to multiply for a week, then developed directly into daughter sporocysts which escaped from the birth-pore in 3 weeks—no germ-masses being formed. The 200 motile daughters actively penetrated the digestive gland, became vacuolated elongate sacs, and their germ-cells multiplied up to about 200, nearly all of which produced cercariae within 6 weeks of the original infection. The few remaining formed germ-masses which made a small addition to the cercariae escaping later. This contrasts markedly with cercarial production in strigeids, which is nearly all accounted for by polyembryony in germ-masses in both generations. The 40,000 to 60,000 cercariae from a single egg of *S. douthitti* are thus shed in a very much shorter time.

N.G.S.

(36b) Larsh & Donaldson show experimentally that infestations of *Nippostrongylus muris* have an inhibiting effect on the numbers of cysticercoids of *Hymenolepis nana* var. *fraterna* that develop in mice, even when the nematode is injected subcutaneously only an hour before the cestodes were fed.

P.A.C.

(36c) Larsh shows that *Mus musculus* is a more satisfactory host for *Hymenolepis nana* var. *fraterna* than is *Peromyscus maniculatus*. More adults develop from similar infections and grow to a larger size and the host is susceptible to infection at any age. Two strains of *M. musculus*, white and dilute brown, showed some difference in their susceptibility. Brown mice seem to be rather more resistant—fewer develop and the prepatent and patent periods tended to be shorter than in the white strain.

P.A.C.

(36e) To overcome the disadvantages of the thick film and centrifugation methods of examining blood for microfilariae, Brady & Lawton use a Sedgwick-Rafter counting cell into which 20 c.c. of blood are pipetted. One c.c. of 0.1 NHCl is added and stirred with a dissecting needle. The cell is covered with a cover glass, air bubbles being excluded. The microfilariae settle rapidly, and are then counted. Up to 0.1 c.c. of blood can be examined easily but objectives with more than 8 mm. cannot be used because of the thickness of the preparation.

R.T.L.

(36f) Cort & Ameel have confirmed previous findings on the development of the sporocysts of *Plagiorchis muris* [see Helm. Abs., Vol. XII, No. 25h] and extended their observations to include the following dissimilar plagiocardiids: *P. micracanthos*, *Cercaria talboti*, *Alloglossidium*

corti, *P. proximus*, and *Macroderoides typicus*. In all these the cells of the wall of the mother sporocyst show unlimited growth to form the paletot layer, but its mode of investment of the daughter sporocysts differs: in some there is an ingrowth of the mother wall, and in others a formation of long tubular outgrowths enclosing daughters. In addition to the primary polyembryony of the zygote in the multiplication of the cells of the germinal line in the mother to form daughters, there is a secondary polyembryony: after a limited multiplication of cells of the germ layer in the daughter embryos, a single germ mass is formed in each, which gives rise to cercariae by the breaking off of multicellular masses, throughout life. By these means the enormous productivity of cercariae, characteristic of plagiorchiids, is effected. In the large daughters of *A. corti* upwards of a million are produced from a single zygote. Groups of cells at the ends of the daughter sporocysts enable growth to take place in later stages, and though this may be irregular, no evidence was obtained of budding or fission. Migration of the daughter from the mother varies with species group, but as in *P. muris*, it may also be influenced by the site of development of the mother sporocyst in the snail: whether the daughter leaves the mother or not, the paletot layer is persistent.

N.G.S.

(36g) Turkeys, ring-necked pheasants and chickens are all suitable hosts for *Syngamus trachea*, but turkeys are shown to be more suitable than chickens, as they harbour more worms from similar feedings. Pheasants tend to lose their infestations more quickly than either of the other hosts. A marked resistance to infection can be induced as the result of a single infection and results suggest that in the case of pheasants and chickens, the resistance may persist after the worms have been actually lost. The percentage development of worms seems to vary inversely with the size of the dose—fewer worms developing from heavy infections than from light ones. This suggests that the resistance becomes active against the infection that induced it, with the result that some or all of the worms are thrown out. There is no evidence that overcrowding can be considered as a factor influencing the survival of the worms.

P.A.C.

(36h) Goble & Cheatum record the presence of *Protostrongylus boughtonii* in *Lepus americanus virginianus* from Valcour Island, where the incidence seems to be very high, 91% of adults and 77% of young being infected. The same species also occurs in cottontail rabbits, *Sylvilagus floridanus mcallurus*, a new record. The incidence of infection was again high and its occurrence unusual, for large numbers of cottontails from other parts of New York State have been free from this parasite. The pathological changes induced in the rabbits are severe. The authors discuss the morphological differences between *P. sylvilagi* and *P. boughtonii*.

P.A.C.

(36i) Von Brand & Simpson found the survival of *Eustrongylides ignotus* larvae to be longest in neutral media containing glucose, xylose and perhaps inulin at 20 C. (2½ years) though survival was fairly good over a wide range of pH, even at 37 C. Mannose, maltose, fructose and cellobiose did not favour survival. Except in very acid media, the worms produced small amounts of acid. It is estimated that the carbohydrate metabolism accounted for 50% of the oxygen consumed at 37 C., whereas at 20 C. only 30% was attributable to carbohydrate. In the presence of peptone only a small amount of the oxygen consumed was utilized in the oxidation of carbohydrate. It is suggested that the metabolic processes differ at high and low temperatures and the significance of this in relation to the life-history of the parasite is briefly discussed.

W.P.R.

37—Journal of Pathology and Bacteriology.

a. DUGUID, J. B. & SHEPPARD, E. M., 1944.—“A Diphyllobothrium epidemic in trout.” 56 (1), 73-80.

(37a) Duguid & Sheppard describe an epidemic in Wales among trout caused by a plerocercoid of the family Diphyllobothriidae. Fatalities were numerous and each fish was heavily infected with large numbers of larvae. The authors suggest that this may have been due to asexual proliferation. Feeding experiments produced adults similar to *D. latum* but certain larval characters were not typical for this species. *Diaptomus gracilis* and *Cyclops strenuus* were shown by experiment to be suitable first intermediate hosts, but the authors were not able to infect fish from these copepods.

P.A.C.

38—Journal of Tropical Medicine and Hygiene.

a. CAWSTON, F. G., 1944.—“Prophylactic treatment of Bilharzia infection.” **47** (2), 20.

(38a) When there is a clear history of skin irritation following upon bathing, it is advisable to give one or more injections of an antimony preparation to destroy the schistosome worms before they become sexually mature and produce eggs. **R.T.L.**

39—Journal of the University of Bombay. Section A. Physical Sciences.

a. MEHTA, S. U., TRIVEDI, J. J., BOKIL, K. V. & NARGUND, K. S., 1944.—“Synthetical anthelmintics—Part IX. α alkyl γ 4-methoxy-3-tolyl, and α alkyl γ 4-methoxyphenyl butyrolactones.” **12** (5), 33-35.

40—Journal of Wildlife Management.

a. BEER, J., 1944.—“Parasites of the blue grouse.” **8** (1), 91-92.

(40a) Beer records the presence of *Heterakis gallinae*, *Cheilospirura* sp., *Raillietina* sp. and *Rhabdometra nullicollis* in *Dendragapus obscurus richardsoni*. Helminths were most abundant in young and immature birds. **P.A.C.**

41—Lancet.

a. HATANGDI, M., 1944.—“Skin-test in cysticercosis.” [Correspondence.] Year 1944, 1 (6301), 740.

(41a) Hatangdi describes a case of epilepsy in an Indian Muslim which was induced by cerebral cysticercosis. Biopsy proved the presence of the larvae, though the adult worm was not present. The Casoni test gave a strongly positive result, cyst fluid being used for injection. **P.A.C.**

42—Medical Journal of Australia.

a. LOWE, T. E. & LANCASTER, H. O., 1944.—“Hookworm infestation.” 31st Year, 1 (14), 289-292.

(42a) Of 29 cases of hookworm infestation in Australian soldiers who have served in the islands north of Australia, 12 were due to *Ancylostoma duodenale*, 21 to *Necator americanus* and 2 to *A. brasiliense*. Six were mixed infections with *N. americanus* and *A. duodenale*. A comparison made between the therapeutic efficiencies of various anthelmintics indicates that emulsions of oleum chenopodium with either carbon tetrachloride or tetrachlorethylene are the most effective. **R.T.L.**

43—Nature. London.

a. HILL, G. R. & SMYTH, J. D., 1944.—“Localization of vitamin C in *Belascaris marginata*.” [Correspondence.] **153** (3870), 21-22.

b. TAYLOR, E. L., 1944.—“A search for endemic areas of trichinosis in Great Britain.” [Correspondence.] **153** (3894), 745-746.

(43a) Hill & Smyth have examined the localization of vitamin C in *Belascaris marginata* by means of the silver nitrate-acetic acid technique. Large numbers of granules of the vitamin were found in the intestinal cells and a few in the muscular tissue and reproductive organs of parasites taken from dogs which had been fed on normal diets. **W.P.R.**

(43b) In the belief that stoats and weasels would show trichinosis in districts where trichinosis was prevalent in rats, Taylor examined a large number of these mammals. Unfortunately they were not obtained from any of the regions in Britain where outbreaks of trichinosis have recently occurred. As the 716 carcasses examined all proved negative Taylor concludes that the reservoirs of infection in England are confined to a few relatively small areas. **R.T.L.**

44—Nebraska State Medical Journal.

a. VOSE, L. O., 1944.—“Imported nematodes.” *29* (5), 148-149.

(44a) Vose gives brief accounts of the more common nematode infections encountered in the tropics, which he considers may be brought back to the United States by soldiers returning from tropical theatres of war.

A.E.F.

45—New England Journal of Medicine.

a. AUGUSTINE, D. L., 1944.—“The therapeutic value of two new sulfonamide compounds, succinylsulfathiazole and phthalylsulfathiazole, in experimental trichinosis.” *230* (12), 349-350.

(45a) Augustine could not find any value in treating experimental trichinosis in guinea-pigs with either succinylsulfathiazole or phthalylsulfathiazole, two new sulphonamide compounds recently introduced to medicine.

P.A.C.

46—New Zealand Journal of Agriculture.

a. ANON, 1944.—“Internal parasites in poultry.” *68* (6), 415-419.

(46a) In a popular article on poultry helminths, the author mentions the prevalence of disease among birds and the direct and indirect loss such parasites may cause. Treatment and general methods of good husbandry are lightly considered.

P.A.C.

47—New Zealand Medical Journal.

a. BARNETT, L., 1944.—“The incidence of hydatid disease in New Zealand.” *43* (233), 39.

(47a) The data contained in this note are supplementary to an earlier paper by the same author published in this journal in 1943 [N.Z. Med. J., 1943, *42*, 260-261].

A.E.F.

48—North American Veterinarian.

a. ANON, 1944.—“For good results with phenothiazine.” *25* (2), 70, 72.

b. THORP, W. T. S., 1944.—“Phenothiazine and the control of internal parasites of sheep.” *25* (4), 218-221.

(48a) In reviewing the results recently obtained using phenothiazine as an anthelmintic, with particular consideration of a meeting of the Society of Animal Production in Chicago, the author points out that the substance is not a simple panacea for all helminthological diseases. It can be extremely useful when used under the right conditions, but may fail disastrously if casually administered. Not all the optimum conditions are yet understood.

P.A.C.

(48b) Thorp recommends that phenothiazine should be administered to ewes and lambs for helminthiasis, the most serious symptoms of which are seen from late summer to early autumn. In conjunction with salt, it is recommended that the drug be administered at the end of November and again in the spring, after lambing. It is essential that medical treatment should be coupled with good sheep husbandry to keep the stock in condition and to prevent re-infestation as far as possible.

P.A.C.

49—North Carolina Medical Journal.

a. SISK, W. N., 1944.—“The modern treatment of pinworm infections.” *5* (2), 52-55.

(49a) Sisk gives a brief account of the symptoms and diagnosis (by cellophane swab) of *Enterobius vermicularis* infection. He stresses the familial nature of the disease, and the importance of treating every member of an infected household. Treatment with gentian violet (1.0 to 6.5 grains per day for 7 days, repeated after an interval of one week) or phenothiazine (0.25 to 2.0 grams per day for 7 days, repeated after an interval of one week) is recommended.

A.E.F.

50—Northwest Medicine.

a. FAUST, E. C., 1944.—“Filariasis.” *43* (1), 9-14.

51—Parasitology.

- a. STEPHENSON, W., 1944.—“The effect of certain inorganic chloride solutions upon the movement of a soil nematode (*Rhabditis terrestris* Stephenson), and upon its bodily size.” 35 (4), 167-172.
- b. REES, G., 1944.—“A new cestode of the genus *Grillotia* from a shark.” 35 (4), 180-185.
- c. TRIM, A. R., 1944.—“Experiments on the mode of action of hexyl resorcinol as an anthelmintic.” 35 (4), 209-219.

(51a) Stephenson has endeavoured to show that the resistance of *Rhabditis terrestris* to changes in osmotic pressure is not due to the impermeability of the cuticle, but is more easily explained on the assumption that the rates of penetration of the substances used in the experiment, viz., NaCN and KCN, are controlled by the activities of living protoplasm rather than by the properties of the cuticle.

R.T.L.

(51b) Rees describes *Grillotia acanthoscolex* n.sp. from *Hexanchus griseus* in Wales. It can be distinguished from all other species of the genus by the possession of small backwardly-directed spines which cover the bothridia and the greater part of the scolex. The small anterior portion between the bothridia is the only portion of the scolex which is not armed. The retractor muscles of the proboscides are inserted at the bases of the bulbs. The shape of some of the proboscid hooks is characteristic. The worms were not gravid, the female genitalia being rudimentary.

P.A.C.

(51c) Trim, using chemical methods, found that the rate of penetration of hexylresorcinol through the cuticle of *Ascaris lumbricoides* (pig strain) was roughly proportional to the concentration of the drug in the medium (modified Ringer solution) and it was not greatly affected by changes in pH (4.1 to 7.8), oxygen tension, peptonized or completely hydrolyzed protein, 1% gum arabic or glucose. However, the uptake of hexylresorcinol was slightly reduced by 0.5% soluble starch and greatly reduced by 1.0% gastric mucin or ox bile salts. Sodium oleate in low concentrations increased penetration, while concentrations of 0.25% and greater completely inhibited uptake.

W.P.R.

52—Plant Disease Reporter.

- a. TAYLOR, A. L., 1944.—“Nematode survey in Florida.” 28 (1), 17-21.
- b. TAYLOR, A. L., 1944.—“Nematode survey in Florida.” 28 (2), 44-47.
- c. TAYLOR, A. L., 1944.—“Nematode survey in Florida.” 28 (3), 85-86.
- d. TAYLOR, A. L., 1944.—“Nematode survey in Florida.” 28 (4/5), 139-142.

(52a) Taylor has carried out a survey of the nematodes affecting various crops grown in Florida. A week or so was spent at a given centre and the chief crops of economic importance growing in the vicinity were examined for the presence of disease caused by nematodes and estimates of the extent of the damage are given. In this report he deals with crops inspected in the vicinity of Orlando and Bradenton. One of the most serious pests is the root-knot nematode, *Heterodera marioni*, affecting tomatoes, squash, cucumbers and egg-plants. Particulars are given about the different soil types encountered and interesting facts are brought out concerning *Crotalaria spectabilis*, an immune cover crop. It is useless to sow this broadcast, it must be sown in rows and inter-row cultivation must be practised to destroy low growing weeds. Various general recommendations are made about the need for further work at each centre.

T.G.

(52b) Taylor gives further particulars in this report on nematode diseases observed in the Bradenton district where root-knot is the chief parasitic nematode affecting a number of crops on all soil types. He makes a number of recommendations which, if adopted, would necessitate a large programme of research.

T.G.

(52c) Continuing his nematode survey, Taylor deals in this report with crops examined in the region of Fort Meyers, Florida, where tomatoes, potatoes, egg-plant, peppers, gladioli, cabbage, squash, cucumbers, cauliflowers and other vegetables are grown. The water supply is mainly from artesian wells and is used for irrigation. *Sesbania* used as a cover crop is useless as it is very susceptible to root-knot.

T.G.

(52d) In this report Taylor deals with nematode diseases found in the vicinity of Belle Glade, on the Everglade peat soils. Celery, potatoes and beans were the chief crops examined,

whilst peas, beetroot, sugar-cane and Russian dandelion, *Taraxacum kok-sagys*, were also inspected. He gives particulars on flooding of the soil which is practised by some farmers for the control of root-knot.

T.G.

53—Post-Graduate Medical Journal.

a. VERNEY, R. E., 1944.—“Cysticercosis.” **20** (221), 111-115.

54—Prensa Médica Argentina.

a. AQUILAR, H., 1944.—“Quiste hidático de pulmón; operación en dos tiempos.” **31** (13), 642-645.
 b. GRANA, A., 1944.—“Alergia y anafilaxia hidatídica.” **31** (15), 680-688.

55—Proceedings of the Helminthological Society of Washington.

a. CRAM, E. B. & HICKS, D. O., 1944.—“The effect of sludge digestion, drying and supplemental treatment on eggs of *Ascaris lumbricoides*.” **11** (1), 1-9.
 b. SPINDLER, L. A., ZIMMERMAN, JR., H. E. & HILL, C. H., 1944.—“Preliminary observations of the control of worm parasites in swine by the use of skim milk.” **11** (1), 9-12.
 c. SPINDLER, L. A., 1944.—“Further observations on the pathogenicity of *Strongyloides ransomi* to swine.” **11** (1), 12-13.
 d. ANDREWS, J. S. & CONNELLY, J. W., 1944.—“The value of phenothiazine for the removal of nodular worms from pregnant and nursing sows.” **11** (1), 13-15.
 e. FOSTER, A. O. & HABERMANN, R. T., 1944.—“Observations on controlling horse strongyles with repeated small doses of phenothiazine.” **11** (1), 15-17.
 f. FOSTER, A. O., 1944.—“Some instances of interspecific copulation among equine Strongylidae (Nematoda) and their probable significance.” **11** (1), 17-18.
 g. ENZIE, F. D., 1944.—“Preliminary tests of perthiocyanic acid as a teniacide.” **11** (1), 18-21.
 h. BRAND, T. VON, 1944.—“Physiological observations upon a larval *Eustrongylides*. VI. Transmission to various coldblooded intermediate hosts.” **11** (1), 23-27.
 i. THORNE, G. & ALLEN, M. W., 1944.—“*Nacobbus dorsalis*, nov. gen. nov. spec. (Nematoda: Tylenchidae) producing galls on the roots of alfalfa, *Erodium cicutarium* (L.) L'Hér.” **11** (1), 27-31.
 j. CHRISTIE, J. R. & ALBIN, F. E., 1944.—“Host-parasite relationships of the root-knot nematode, *Heterodera marioni*. I. The question of races.” **11** (1), 31-37.
 k. DOUGHERTY, E. C., 1944.—“The correct authorities and dates for various supergeneric names in the nematode suborder Strongylina.” **11** (1), 37-40.

(55a) *Ascaris lumbricoides* eggs survive for long periods in digesting sludge. About 10% are viable after 6 months and some are capable of development even after a year. Eggs previously embryonated in activated sludge are somewhat less resistant than undeveloped eggs to subsequent anaerobic digestion. The eggs survived a reduction of the moisture content of sludge to 5.8% and did not lose viability for 44 days in stored pulverized sludge in which further drying was prevented. Fumigation with methyl bromide destroyed undeveloped eggs in sludge and in sand, but had little effect on eggs which were partially or completely developed.

R.T.L.

(55b) By withholding from pigs all solid food and water for 3 to 5 days and feeding with skim milk *ad libitum*, a copious diarrhoea followed with the result that the pigs were freed from most of their whipworms, nodular worms and ascarids. It was unnecessary to continue after the faeces had become frothy—usually after the diarrhoea had persisted for about 3 days. The treatment had no ill effects. The amount of milk consumed daily ranged from 2 to 8 gallons depending upon the size of the pig. Growing pigs remained relatively free from infection when fed sufficient milk once a day to produce purging and they made more rapid gains than the controls, which, under the same conditions of constant exposure acquired heavy infections of nodular worms, whipworms and roundworms.

R.T.L.

(55c) It is confirmed that naturally acquired infection with *Strongyloides ransomi* may cause death. Sows with infections too light to be detected by faecal examination may be a source of infection to their litters and become repeatedly re-infected themselves and so succumb to the disease.

R.T.L.

(55d) No ill effects were apparent when 30 g. doses of phenothiazine mixed with one pound of swill were administered to sows 4 to 11 days before farrowing. Infections with nodular worms were removed.

R.T.L.

(55e) Avoidance of toxic reactions in horses can be attained by administering phenothiazine in divided doses of 5 g. weekly, but *Ascaris* infections were unaffected. R.T.L.

(55f) Six examples are given of isolated instances of interspecific copulation met with in routine examination of Strongylidae in horses. Foster believes that our knowledge of the group is relatively standardized and suggests that confusion would be avoided if unusual specimens were allocated to known species unless there is satisfactory evidence to the contrary. R.T.L.

(55g) Perthiocyanic acid has a marked taeniacial action on dogs when administered without preliminary fasting at the rate of 0.1 g. per lb. of body weight with a maximum dosage of 5 g. 2 g. of magnesium sulphate given 2 to 3 hours after treatment is advisable. Its effect on ascarids, hookworms and whipworms was negligible. In sheep the drug is toxic and without significant taeniacial action. R.T.L.

(55h) Brand has introduced orally, per rectum and subcutaneously, larvae of *Eustrongylides ignotus* isolated from cysts of *Fundulus heteroclitus*, into a variety of fishes, amphibians and reptiles, which can thus act as efficient intermediate hosts. After wandering in the body the larvae finally become encysted. He notes that the carp and the garter-snake resist infection. R.T.L.

(55i) Thorne & Allen describe and figure a new genus and species of plant parasitic nematode, *Nacobbus dorsalis*, giving rise to galls on the roots of *Erodium cicutarium* (L.) L'Her., "filaree", growing in a sand pit in Kern County, California. The worms present sexual dimorphism, the female body becoming swollen and sac-like whilst the male remains worm-like. One of the chief features distinguishing the genus from *Heterodera* is the fact that the oesophageal glands lie dorsal, not ventral, to the beginning of the intestine. The female gonad is single and not double as in *Heterodera*. The posterior end of the female body is somewhat tapering and usually protrudes from the surface of the gall. *Anguillulina aberrans* Thorne, 1935 is brought into the new genus as *Nacobbus aberrans* n. comb. T.G.

(55j) The occurrence of races of *Heterodera marioni* differing in their host-parasite relationships is indicated by plants being resistant to one race and susceptible to another, or being susceptible to two races which cause two different types of galling. Two experiments are described which illustrate the variations between races. In the first, nine races of *H. marioni* were tested on *Trifolium resupinatum*, the numbers of parasites and their condition being observed after 30 days. This host proved suitable for four of the races, doubtful for one, and unsuitable for the other four. In the second experiment ten host-plants were tested with 14 races of the nematode and the degree of infection estimated after 8 weeks. Peanut (*Arachis hypogaea*), cotton (*Gossypium hirsutum* var. Coker 100) and alfalfa (*Medicago sativa*) showed the most striking differences in comparative susceptibility. Tomato was susceptible to all populations, but the type of galling varied considerably. Amongst the 14 populations tested at least 5 distinct races could be distinguished. It is pointed out that these results have a significant bearing on the consideration of suitable crops for rotation on root-knot nematode infected land. M.T.F.

(55k) Dougherty discusses the status of the following supergeneric names applicable to nematodes belonging to the suborder STRONGYLINA, viz.: STRONGYLINA Pearse, 1926; STRONGYLINAE Railliet, 1885; CYATHOSTOMINAE Nicoll, 1927; ANCYLOSTOMATIDAE Nicoll, 1927; ANCYLOSTOMATINAE Nicoll, 1927; UNCINARIINAE Rosenau, 1914; METASTRONGYLIDAE Leiper, 1909; TRICHOSTRONGYLINAE Leiper, 1909; METASTRONGYLINAE Railliet & Henry, 1909. In each case he gives reasons why the authority and date given after each name are to be preferred to those most frequently found in current literature. T.G.

56—Proceedings of the Indian Academy of Sciences. Section B.

a. KARVE, J. N., 1944.—"On a small collection of parasitic nematodes from Anura." 19 (3), 71-77.

(56a) Karve describes *Gendria ranarum* n.sp. (Quimperiidae) from the small intestine of *Rana tigrina* in Poona. Cervical alae are present, a character which distinguishes it from other

species of the genus. *Cosmocercoides bufonis* n.sp. is an oxyurid parasite found in the caecum of *Bufo himalayanum* in Muktesar. This species closely resembles *C. variabilis* but can be distinguished by the extent of the lateral alae and the large conspicuous nature of the lips. The number and structure of the papillae are also distinctive. Karve adds further information on the structure of *Camallanus baylisi* recovered from *Rana tigrina*. P.A.C.

57—Report. Northern Counties Animal Diseases Research Fund.

a. STEWART, W. L., 1944.—“Research work into sheep and lamb diseases, with a report on grass sickness in horses.” 10th Report, 37 pp.

(57a) This annual report contains two sub-reports of helminthological interest. The first shows that productivity in lambs may be limited by helminth infestation and by mineral deficiencies. The use of phenothiazine in monthly doses and of suitable minerals, mainly cobalt, was effective in increasing the profits from sheep farming. The second report, a record of the work carried out in 1943, continues the trials with a mixture of salts and phenothiazine. The administration of the mixture is best begun in June and there is no extra benefit to be gained by giving fortnightly rather than monthly treatments. P.A.C.

58—Revista de la Asociación Médica Argentina.

a. GOÑI MORENO, I., 1944.—“Membrana hidatídica encarcelada en lóbulo inferior de pulmón izquierdo. Dificultades en el diagnóstico. Operaciones sucesivas.” 58 (531), 183-184.

59—Revista Clínica Española.

a. ROMEO ORBEGOZO, J. M., 1944.—“Un caso de quiste hidatídico del mediastino.” 12 (1), 39-41.
b. PIULACHS, P. & SALA-PATAU, E., 1944.—“Ascaridiosis de las vías biliares.” 12 (6), 409-416. [German and French summaries, p. 416.]

60—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

a. MAZZOTTI, L. & OSORIO, M. T., 1944.—“Ventajas que presenta el método de Graham en el diagnóstico de la oxiuriasis.” 10 (2), 42-43.

(60a) The technique for the diagnosis of *Oxyuris vermicularis* suggested by Graham 1941 [see Helm. Abs., Vol. X, No. 3a] is commented upon favourably. R.T.L.

61—Science.

a. WRIGHT, W. H., 1944.—“Present and post-war health problems in connection with parasitic diseases.” 99 (2568), 207-213.
b. CULBERTSON, J. T. & ROSE, H. M., 1944.—“Chemotherapy of filariasis in the cotton rat by administration of Neostam.” 99 (2569), 245.

(61b) Trials with Neostam (stibamine glucoside) have proved its efficiency as an anthelmintic against *Litomosoides carinii*, a filarial parasite of the pleural cavity of cotton rats in Florida. The drug was administered as an intramuscular injection, every week for 4 weeks. Microfilariae disappeared from the blood and at autopsy the adults were found to be dead and surrounded by an inflammatory exudate. The authors suggest it would be worth trying against human filariasis. P.A.C.

62—Scottish Farmer.

a. ANON, 1944.—“Phenothiazine trials. West of Scotland results.” 52 (2683), 635.
b. TAYLOR, E. L., 1944.—“Phenothiazine trials.” [Correspondence.] 52 (2688), 736.

(62a) The results of some field trials with phenothiazine involving over 500 sheep in the west of Scotland are described. They are somewhat confusing, suggesting that routine dosing with the drug is not always valuable or justifiable. Some sheep benefited—these were probably heavily infested with helminths—others seemed to be practically unaffected, but at one centre the effect was deleterious. Actual results on the helminths are not given: there is only a short table with some information of weight gains and losses. P.A.C.

(62b) Taylor comments on the preceding paper. He points out that there is a considerable bulk of evidence from very wide scale trials, showing that phenothiazine is a useful anthelmintic in sheep. It has a direct action on many parasitic worms and its efficiency has already been demonstrated in various parts of the world.

P.A.C.

63—Scottish Journal of Agriculture.

a. GEMMELL, A. R., 1944.—“The potato root eelworm.” **24** (4), 223-229.

(63a) Gemmell assesses the loss in early potatoes in Ayrshire fields from *Heterodera schachtii* infection at 10% to 15% in wet years and at 50% to 60% in dry years, while in main crop potatoes, e.g., Kerr’s Pink, 40% reduction in crop would result from a moderate infection and anything up to 95% in a severe one. Experiments with calcium chloroacetate on an Ayrshire farm gave a yield of 9.3 tons per acre when 3 cwt per acre were used, 10.2 tons per acre after 5 cwt per acre, and 11.2 tons per acre after 7 cwt per acre, while the control gave 6.6 tons per acre. In all there was a considerable infestation of the roots. The control showed 67% infection while the treated plots gave 38%, 29%, and 20% infection respectively. The treatment was therefore merely palliative; although there were increased yields in subsequent years they did not always balance the cost of the treatment. Gemmell supports the suggestion that all infected land should be scheduled and the sale of seed potatoes from it prohibited.

R.T.L.

64—South African Medical Journal.

a. KARK, S. L. & LE RICHE, H., 1944.—“A health study of South African Bantu school-children.” **18** (6), 100-103.
 b. MEILLON, B. DE & LAVIOPIERRE, M., 1944.—“South African ‘creeping eruption’.” **18** (7), 115-116.

(64a) Included in this article is a table showing the incidence of helminth eggs in the faeces of Bantu school children. The species recorded are *Schistosoma haematobium*, *S. mansoni*, *Taenia* sp., *Hymenolepis nana*, *Oxyuris vermicularis*, *Trichuris trichiura* and *Ascaris lumbricoides*. Examination of the urine showed that the incidence of *S. haematobium* was as high as 70.72% at Letaba.

R.T.L.

(64b) That creeping eruption can be produced by larvae of *Ancylostoma brasiliense* from dogs in South Africa is demonstrated by experiments on a human volunteer. Murray’s report that a mite causes creeping eruption in South Africa is shown to be due to an erroneous interpretation of his original material, which on re-examination has proved to be an adult Tarsonemid.

R.T.L.

65—Transactions of the American Microscopical Society.

a. RANKIN, jr., J. S., 1944.—“A review of the trematode genus *Glypthelmins* Stafford, 1905, with an account of the life cycle of *G. quieta* (Stafford, 1900) Stafford, 1905.” **63** (1), 30-43.
 b. WEBSTER, J. D., 1944.—“A new cestode from the bob-white.” **63** (1), 44-45.
 c. JONES, A. W., 1944.—“*Diorchis reynoldsi* n.sp., a hymenolepidid cestode from the shrew.” **63** (1), 46-49.
 d. JONES, A. W., 1944.—“*Diorchis ralli* n.sp., a hymenolepidid cestode from the king rail.” **63** (1), 50-53.
 e. TODD, C., 1944.—“On the development and hatching of the eggs of *Hammereschmidtiella diesingi* and *Leidyneema appendiculatum*, nematodes of roaches.” **63** (1), 54-67.
 f. RANKIN, jr., J. S., 1944.—“A review of the trematode genus *Halipegus* Looss, 1899, with an account of the life history of *H. amherstensis* n.sp.” **63** (2), 149-164.
 g. STUNKARD, H. W. & LYNCH, W. F., 1944.—“A new anoplocephaline cestode, *Oochoristica annellae*, from the California limbless lizard.” **63** (2), 165-169.
 h. DOETSCHMAN, W. H., 1944.—“Some suggestions in microtechnique particularly useful in microentomology and parasitology.” **63** (2), 175-178.

(65a) An experimental determination of the life-cycle of *Glypthelmins quieta* (Stafford) (Plagiorchidae) has been made by Rankin. *Cercaria hemilophura* Cort (syn. *C. mesotyphla* Miller) are identified as synonyms of *G. quieta*, developing in double walled sporocysts in the liver of *Physa gyrina*. These cercariae, of the Ornatae group, penetrate the epithelium of frogs where the metacercarial cysts eventually become pigmented. Sloughed skin containing many hundreds of cysts was fed to *Rana pipiens* which became infected with even two-day-old

metacercariae. The great variation of this species was studied in 450 specimens and was shown to include forms previously assigned to 6 other species. Revised diagnostic characters for the 4 valid species discussed comprise condition of the metraterm, uterine coils and the scattered or bunched vitellaria. The synonyms of the type species, *G. quieta* (Stafford), were found to include *G. californiensis*, *G. parva*, *G. rugocaudata*, *G. shastai*, *G. staffordi*, and *G. subtropica*.

N.G.S.

(65b) *Raillietina* (*Raillietina*) *colinia* n.sp., a parasite of *Colinus virginianus* in Texas, possesses from 100 to 108 rostellar hooks and the uterine capsules contain only 4 to 6 embryos.

P.A.C.

(65c) Jones describes *Diorchis reynoldsi* n.sp. from *Blarina brevicauda* in Virginia. It is characterized by the possession of 100 small rostellar hooks.

P.A.C.

(65d) *Diorchis ralli* n.sp. is a parasite of *Rallus elegans* in Virginia. There are certain small morphological distinctions in the adult worm, but the most interesting feature is seen in the onchosphere. There are the usual 3 pairs of hooks, but the medial hook is twice as thick as the lateral hook.

P.A.C.

(65e) Todd has studied the early developmental stages of *Hammerschmidtia diesingi* and of *Leidynema appendiculatum*. The embryos moult within the egg-shell outside the body, producing an infective larva, and once more within the egg-shell after ingestion by the host, but before hatching. There is evidence to show that this second moult occurs only in the presence of ammonia, produced by the bacterial flora in the gut of the cockroach.

P.A.C.

(65f) Rankin has determined the life-history of *Halipegus amherstensis* n.sp. under laboratory controlled conditions. The non-ciliated miracidium has a crown of 12 spines when it is liberated in the gut of *Physa gyrina*, and in the digestive gland it develops into sausage-shaped, sluggish sporocysts; within these, rediae develop which give rise to cystophorous cercariae, each with a single permanently everted appendage, the movement of which attracts *Cyclops viridis* to devour them. A few free metacercariae come to lie in the haemocoele and they continue development when the cyclops is eaten by frogs. Adults were recovered from the stomach of tadpoles and the mouth and eustachian tube of frogs (*Rana catesbeiana* and *R. clamitans*) from Massachusetts. The taxonomy of the genus is discussed and the diagnosis emended. In view of the variability of some specific characters emphasis is laid on the use of developmental features to separate the similar species in this genus. *H. longispina* is made a synonym of *H. ovocaudatus*, *H. lermensis* of *H. occidualis*, and *H. spindale* of *H. mehrensis*; *H. perplexa* is regarded as *sp. inq.*, while *H. fusipora* is relegated to the genus *Genarchopsis*, and *H. aspina* is left without a known genus.

N.G.S.

(65g) Stunkard & Lynch describe two cestodes from *Anniella pulchra nigra* which, though they differ relatively from other species of *Oochoristica*, are with reserve named *O. anniellae* n.sp., for it is stressed that abundant material is required to determine the limits of normal variation within the species of this genus.

N.G.S.

(65h) Doetschman describes a simple technique for mounting small insects which can be adapted for use when the insect is parasitized by larval nematodes. It is a modification of the method used by Berlese and later adapted by Ewing for mounting Acarina. A mixture in water of chloral hydrate, gum arabic, glycerine and glucose, and basic fuchsin stain acts as a fixative and mounting medium together, thus eliminating much handling of the specimen.

P.A.C.

66—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. MURRAY-LYON, R. M., 1944.—“Important diseases affecting West African native troops.” *37* (5), 287-296. [Discussion, pp. 296-302.]
- b. MENON, T. B., RAMAMURTI, B. & RAO, D. S., 1944.—“Lizard filariasis. An experimental study.” *37* (6), 373-386.
- c. EARLE, K. V., 1944.—“Asthma produced by *Ascaris* infestation.” *37* (6), 451-452.

(66a) Among the diseases mentioned are 3 cases of hookworm with gross anaemia and circulatory failure with haemoglobin below 20%. The tapeworms met with were invariably *T. saginata*.

R.T.L.

(66b) Menon et al. have examined the development of a microfilaria in the lizard to the adult stage, this particular filaria closely paralleling the lymphatic filarias of man. There is a strong tendency for the early stages to be passed in the deeper lymphatics. Lymphatic obstruction is very marked and seems to be due to inflammatory changes round the worm, there being a chronic lymphangitis. Destruction of dead worms apparently takes place in the lymphatic system, disintegrating fragments of worms being surrounded by macrophages.

P.A.C.

(66c) Earle describes an attack of asthma in a West Indian negro apparently brought on by the occurrence of *Ascaris* in the stomach. These worms were finally vomited and the symptoms cleared up following the loss of the worms and an injection of adrenalin.

P.A.C.

67—Turtox News.

a. WHITE, F. M., 1944.—“Schistosomiasis.” 22 (1), 27-28.

68—United States Naval Medical Bulletin.

a. BURHANS, R. A., CAMP, J. D., BUTT, H. R. & CRAGG, R. W., 1944.—“Lymphangitis of suspected filarial origin. A preliminary report concerning its treatment.” 42 (2), 336-340.
 b. LOWMAN, E. W., 1944.—“Incidence of filariasis in children.” 42 (2), 341-343.
 c. FARNER, D. S., 1944.—“Arthropod-borne disease in Micronesia.” 42 (4), 977-989.

(68a) Burhans et al. report 46 cases of lymphangitis, believed to be of filarial origin, among U.S. marines in the South Pacific area. Symptoms and pathology are briefly discussed. Preliminary tests of an X-ray treatment were encouraging: final results will be published later.

A.E.F.

(68b) Of 201 natives of a South Pacific island, 15.9% were positive for *Microfilaria bancrofti*. The highest incidence was in the 20 to 35 age-group. One child of 2 years and another of 3½ years were infected. Earlier records of infections in young children are reviewed.

A.E.F.

(68c) Among the arthropod-borne diseases of Micronesia dealt with by Farner is filariasis. From a review of the literature it is concluded that infection is widespread, but that incidence is low. *Culex fatigans*, which transmits nocturnal filariasis, is common in Micronesia, and *Aedes variegatus*, the diurnal vector, abounds in Guam and may occur throughout the area. It is therefore probable that both types of infection are present. The need for further research on filariasis and its transmission in Micronesia is stressed.

A.E.F.

69—Veterinary Journal.

a. BRITTON, J. W., 1944.—“Phenothiazine as an anthelmintic in horses.” 100 (5), 102-106.

(69a) Britton reviews the literature on phenothiazine as an equine anthelmintic, with special reference to toxicity. Increased oxidation and absorption of the drug probably account for the toxic symptoms which have been observed. Poisoning can be kept to a minimum by using a maximum dose of 30 g. per 1000 lb. body-weight, and by feeding bran mashes before administration. Small repeated doses should be given to emaciated and anaemic animals. The paper includes 30 references to the relevant literature.

A.E.F.

70—Veterinary Medicine.

a. BRECHEISEN, A. W., 1944.—“An interesting case of parasitism.” 39 (2), 76.
 b. HAWKINS, P. A., COLE, C. L., KLINE, E. E. & DRUDGE, J. H., 1944.—“Studies of sheep parasites. I. The course of untreated nematode infections.” 39 (4), 154-161.

(70a) A Brown Swiss cow due to calve within a month was suffering from paleness of the mucous membranes with icteric discolouration, dyspnoea, emaciation and weakness of the hind limbs. Four ounces of “Phenite” (phenothiazine) resulted in the passage 18 hours later

of "a gallon of large roundworms, a tapeworm segment 4 feet in length, and no doubt countless thousands of stomach worms that were invisible", although no roundworm eggs had been found in the examination of a faecal sample.

R.T.L.

(70b) Hawkins et al. have watched the course of nematode infestations in untreated ewes and lambs kept under normal conditions of farm management. Regular egg-counts, red and white blood cell and differential counts, and haemoglobin estimations were made. Infestation in ewes became very low in the winter months, fresh infestation occurring in the spring. This was partly eliminated in the late spring. Lambs on the other hand became heavily infested when about 3 or 4 months old, the infestation rising quickly to a maximum and then falling equally quickly. Clinical symptoms are present and changes occur in the relative and actual composition of the blood cells. These disappear as the infestation declines.

P.A.C.

71—Veterinary Record.

- a. TAYLOR, E. L., 1944.—"Helminthological immunity and the control of helminthiasis among grazing animals." **56** (12), 91-93. [Discussion, p. 93.]
- b. ANON, 1944.—"Pasture improvement and alternate husbandry in relation to animal health. Discussion by the Central Veterinary Society." **56** (23), 185-188; (24), 195-198.

(71a) In an address to veterinarians Taylor shows that a knowledge of immunological processes is of great value in understanding helminth diseases and indicates some practical measures for the control of disease. The mechanism of immunity in helminthiases depends on the development of immune substances in the body fluids, upon the education of various cells, and the growth and production of specialized cells and tissues. The age of the animal was probably the most important single factor in the development of its immunity.

P.A.C.

(71b) In the discussion following the reading of a paper on pasture improvement and alternate husbandry in relation to animal health, Taylor considers the parasitological side of the question and stresses the danger of overcrowding. Pastures are already "seeded down" with helminth ova and larvae, which only need poor management of the stock in order to develop and produce disease. Healthy mature animals are highly resistant to helminthic infestation: young animals are less so. Measures have been worked out, which, if followed, would reduce the risk of heavy infestation.

P.A.C.

72—Veterinary Student. Iowa State College.

- a. GOOCH, J. M., 1944.—"Prenatal ascarid infection." **6**, 140-141.

73—Zeitschrift für Fleisch- und Milchhygiene.

- a. BUGGE, G., 1944.—"Der Muskelegel Dunckers beim Frosch." **54** (8), 73-76.
- b. BUGGE, G., 1944.—"Zum Vorkommen zahlreicher *Taenia solium* im Darm des Menschen." **54** (8), 76-79.
- c. KOLBE, F., 1944.—"Zur Bezeichnung 'Einsiedlerbandwurm'." **54** (10), 94-95.

(73a) In an attempt to work out the life-history of *Agamodistomum suis*, Bugge has inspected ponds in areas from which infections in wild pigs had been reported. Samples of water, of vegetation, and of the fauna (including leeches, snails, *Rana esculenta*, *R. fusca*, and a toad) were examined for earlier developmental stages of the fluke. The search was without success, but in several *Rana fusca* specimens of *A. suis* were found in the same stage of development as has been reported from the pig. It is worthy of note that in the frogs *A. suis* was recovered from all parts of the body.

A.E.F.

(73b) Bugge points out that although human infection with *Taenia solium* is often limited to a single worm, this is by no means always the case: he quotes from the literature several cases of multiple infections. The same is true of *T. saginata*. Two cases are quoted in which both *T. solium* and *T. saginata* were recovered from the same patient.

A.E.F.

(73c) In view of Bugge's paper [see preceding abstract] Kolbe points out the unsuitability of the popular name "Einsiedlerbandwurm" [hermit tapeworm] applied to *Taenia solium*. The Latin "solium" is said to be derived from an Arabic word meaning "girdle", and has

no connection with "solus" [single]. The names "Schweinebandwurm" [pig tapeworm] and "Rinderbandwurm" [cattle tapeworm], used for *Taenia solium* and *T. saginata* respectively, are also open to objection: Kolbe considers they should be called the "armed" and "unarmed" tapeworms.

A.E.F.

NON-PERIODICAL LITERATURE

74—IMPERIAL BUREAU OF PLANT BREEDING AND GENETICS, 1944.—"Bibliography on insect pest resistance in plants (with a supplement on resistance to nematodes)." Cambridge, 39 pp.

The supplement on resistance to nematodes is a bibliography containing 101 references.
R.T.L.,

75—NAUSS, R. W., 1944.—"Medical parasitology and zoology." New York & London, xix + 534 pp.

